

French Beans: A Case Study in Farm Planning

Objective: Discuss the factors involved in planning a private investment in agriculture and determine how competitiveness, consumer taste, government policy, donor support, and other factors impact that decision.

This is the story of an African farmer, Daniel Kurui, who made an important investment decision three years ago to invest in French bean production.

It was spring, 1996. Daniel had had a difficult winter on his two-acre maize farm in the highlands. While the farm produced enough to feed his family, there was often not enough maize to sell in order to provide his wife and four children with more than the daily necessities. When there was enough to sell the situation was not much better, as the brokers who bought the produce paid very little, claiming the maize was low quality and that their transport costs were high because of poor road conditions.

Daniel was able to keep the farm, and plant new crops each year, because of credit provided at low interest rates by the government. However, the government had recently reduced tariffs for foreign suppliers. Local wholesalers and processors were suddenly able to buy maize at a much lower price than Daniel's locally grown maize, endangering his farm. Though the government purchased some of his maize, he felt the price he received was unfair, especially given high input prices, and he saw no relief to this cycle. He was also fed up dealing with government buyers, creditors, and input suppliers.

Daniel considered going to a nearby city to look for factory work while his wife and children remained on the farm; however, he abandoned this idea when friends told him the cities were already crowded with farmers who had moved there looking for work. They encouraged him to convert his maize farm to the newest cash crop that everyone was talking about, French beans. Daniel decided to learn more about this crop. As he learned more, especially that the beans were grown and harvested year round, he decided

to think seriously about converting one acre of his two-acre maize farm to growing French beans. By rotating four quarter acre plots, he could have harvests every week of the year and dramatically increase his income and smooth his earnings.

Daniel suspected that his wife, Jackline, would not share his enthusiasm. Although they would still be growing some maize, growing French beans would mean a step away from the traditional farming to which they were accustomed and an increased dependence on local brokers. As predicted, when he told Jackline of his idea she was taken aback. She knew that beans were a labor-intensive and delicate crop, which meant they would have to hire workers and purchase inputs - a substantial investment. If they were able to obtain enough credit to make this investment, and then failed, they would certainly be in worse straits than they were in now. Also they might not have enough maize or beans to feed the family if the crop failed or the market collapsed, and obtaining cash to buy food had always been a struggle. Jackline worried about her own role too. She managed their small maize farm and did most of the work on it. She was concerned that on a commercial farm, with many workers, she would be just another hired hand.

Daniel and Jackline agreed that securing the financing necessary to invest in inputs would be their biggest constraint. She reminded Daniel that, last year, they had been unable to obtain credit from their small farmer credit program to expand their plot. After last year's drought, coupled with the recent high inflation, their prospects could only have worsened. He answered that if they could not get credit through the bank or a smaller credit program, there was a good chance that a group called the African Project Development Facility (APDF), or one similar to it, would help them financially.

The next day while Jackline was at the market she met one of her friends from the village, Beverly. Beverly was sure that French beans were a big money maker. Her daughter had been living near Lake Victoria where she owned a French bean farm. She said the money was good and allowed her to support herself financially, something she would otherwise have not been able to do. In fact, not only did she run the farm, but most of the other workers were women as well, which made her very proud. She was recently

quite ill, however, and spent several days in the hospital. Beverly said that many farmers in the region had been sick and that hospital workers blamed it on the pesticides that were being used. Hospital workers had suggested that they wear protective clothing, but Beverly's daughter was dubious. She had heard of farms where workers were given special suits to wear when applying pesticides, but rarely wore them because the suits were hot and uncomfortable and it was hard to breathe through the masks that went with them. Although she was well again, Beverly's daughter had moved back home and was not sure what she would do about the bean farm.

Daniel then consulted James, the son of an acquaintance, who was about to complete his degree in agriculture. James offered to help Daniel determine the necessary inputs and factors to consider when planting French beans as well as give him some pointers for making his farm successful.

James confirmed what Daniel had heard – that French beans were typically grown in quarter-acre rotations. Seeds were planted every two months. After initial planting, the first crop could be reaped in a few weeks, and he could expect to harvest three crops per week, every week of the year. The rotations would help maintain yields close to the same level, year after year. Of course, he would need to hire workers year round to keep the farm operational, about 6 by James' estimates.

Daniel wondered about the price for the beans and how he would get them to the European markets that he had heard were so important. Would he be selling them through the government? No, James replied. He pointed out that the government had not acted much as buyer or seller in this crop, nor had it placed restrictions as it had done in the case of other crops. The key to making it in this market was building relationships with local distributors and exporters. These distributors had set up local distribution networks with collection points they visited every morning in refrigerated trucks to buy whatever was available. The distributors, in turn, had arrangements with exporters and processors. James suggested that Daniel negotiate regular contracts with these distributors, both to help ensure his price and as a source of credit for purchasing inputs.

Next, James and Daniel discussed pesticides and fertilizer use as well as the necessity of using high quality seeds. Daniel had attended field days given by the government and was familiar with the benefits of using pesticides and fertilizers, but had rarely purchased any. His maize was consumed locally, and funding was always an issue. James pointed out that both of these would be necessary to grow the high quality beans that European buyers insisted on. Good seeds would be more expensive than others but would be a worthwhile investment, as lower quality seeds were often mixed with seeds of other bean varieties or produced smaller produce that did not meet European specifications.

James went on to say that the European market, which buys a lot of French beans from Daniel's country, was concerned with the health of consumers, producers, and the earth. People did not want to consume pesticides that might be left on French beans or other produce, and because of that pesticides were not to be applied to French beans for seven days prior to harvest. The government had responded to this by having French beans checked for pesticide levels prior to shipment. Foreign consumers were also concerned that the run-off water from farms might run into local natural water bodies, polluting drinking water and killing wildlife. This was something that Daniel had not considered. He had not thought about the connection between farming and wildlife, and this had not been part of the curricula for the field days that he had attended.

As to further assistance, James told Daniel that the Fresh Produce Exporters Association (FPEAK) was a useful resource for small farmers. They offered instruction in growing horticultural products, so Daniel should take time to meet with them when representatives visited his area. In addition, the Horticultural Crops Development Authority (HCDA), a government body, would advise him of ways to improve the product and make it more profitable. Often, these recommendations resulted from problems seen in airport inspections or complaints from European buyers. For instance, James had recently learned that exporters had received complaints from European buyers that beans were being sorted incorrectly – they are typically sorted by criteria such as variety, size and maturity. Exporters relayed this information to growers and asked them to teach their

workers better sorting methods. HCDA responded by providing training on sorting beans.

Daniel's concern about the European market lingered. Were they likely to continue to demand French beans, or could their tastes change at any moment, and was their demand consistent throughout the year as Daniel's harvests would be? James pointed out that European demand for French beans had been consistent over the past few years and that seasonal fluctuations did affect the price, but were moderated by demand from processors who canned and exported the product. Other African countries were getting into the market and competing, but James said they had remained minor players so far.

Daniel decided to use the knowledge he had gained to develop a budget for converting an acre to French beans. First, he knew that to make the farm operational he would have to secure credit to purchase seeds, fertilizer, and pesticides. He would also have to hire workers and, if necessary, purchase a pump to water the beans.

Daniel and James then made a list of operating expenses. Items on this list included wages for workers, seeds, fertilizer, and pesticides. While most of the crop would be rain-fed, he knew he might, in excessively dry conditions, have to pay for fuel to run the pump in order to water the field.

Daniel knew no crop was without risks. Heavy rains often washed out roads, making them impassable. This would mean there was a chance that distributors would not be able to pick up his beans and he would not be able to deliver them. If this happened, it would lead to a total loss. This was a worry but he thought that, with a year-round crop, he could lose a few harvests and still survive.

Finally, Daniel compared the annual costs of running the farm with the average amount he expected to make from selling the French beans. His budget indicated that he would make a profit in year one and that it would increase slightly in subsequent years.

Daniel and Jackline went back over the information they had and discussed the investment again. Eventually, despite the risks, they agreed they would convert one acre to French beans and keep most of the other in maize, with a few coffee trees. They went about planning the conversion.

Assignment

Daniel and Jackline took many things into account in making their decision to invest in converting one acre of their small farm to French beans. If you were in their shoes, would you have handled the decision-making any differently? Do you think they made the right decision, and why or why not? What should be some of Daniel and Jackline's points of discussion when they negotiate a delivery/price contract with distributors?

Appendix A: Budget for a French Bean Farm

(amounts in shillings per acre per year, \$1 = Sh 78.5)

REVENUE , 2,500 Kgs per acre @ Sh 46.16	115,395
MATERIAL AND INPUTS	
Seeds, at 25 kg per acre	14,444
Manure	6,908
Chemical fertilizers	7,458
Pesticides	5,809
Water pump and fuel	3,925
Land preparation (bullocks)	2,434
Labor, 80 person/days for land preparation, sowing, husbandry and harvesting	13,031
TOTAL MATERIAL AND INPUTS	54,009
GROSS MARGIN	61,386
LAND AND INTEREST	
Rent of land	15,700
Interest on borrowed money	4,834
TOTAL LAND AND INTEREST	20,534
NET REVENUE	40,852

Appendix B: Competitiveness in the Country's Agriculture

Although only 20% of the country's land is well suited to agriculture and most of it is rain fed, agriculture is still a major driver of the economy. A recent Agricultural Sector Development Strategy noted that agriculture directly provided about 26% of GDP in the first half of the 1990s and indirectly contributed an additional 27%. The report noted that the sector contributes to around 80% of employment, 60% of export earnings, and 45% of Government revenue. In 1996, livestock provided 42% of agricultural GDP, the bulk from cattle and dairy products, maize, horticulture, tea and coffee. With the exception of maize, these are also the country's most important foreign exchange earners. Horticulture alone accounts for slightly more than 13% of total exports and employs an estimated two million people. French beans have experienced explosive growth during this period, which has led some to describe it as the “green bean revolution.” French bean exports are second only to cut flowers in value, with most French beans, like other fruits and vegetables that are exported, grown primarily by small-scale producers.

How did the country succeed in developing an export industry dominated by small farmers in French beans, a delicate, highly perishable product sent to a highly discriminating European market with a complex array of regulations? Their strength came from a variety of factors. Intensive private investment in the area, much of it from residents of Asian and European ancestry with contacts in Europe, provided the basis for the boom. Preferential trading agreements were important in opening European markets, but the government worked with the private sector, through the Export Promotion Council (EPC) and the Horticultural Development Authority (HCDA), to develop those markets. In many cases donors also supported these efforts through programs like the Export Development Support (EDS) project funded by USAID. Established agricultural links, critical to marketing this perishable commodity to the UK, Germany, France and other countries, were already in place as a result of a vibrant tourist industry.

Through the EDS project, USAID provided co-financing support and conducted a matching grants program for private sector companies involved in French bean

production and distribution. Therefore, USAID's transfer of technologies to small farmers took place primarily through the extension services of these private sector companies and the support given to distribution networks. USAID had also helped set up the Fresh Produce Exporters Association (FPEAK) which provided extension services to small farmers growing horticultural products, including French beans. Although USAID had been involved in the country's French beans sector since the mid-1980s, its involvement in the country's overall agriculture sector dated back to the 1970s when support had been provided to the HCDA, mainly through staff support programs. In the 1990s, primarily via HCDA and FPEAK projects, USAID continued to support French bean farmers through various export promotion activities, training, technical assistance, and by providing global market information and analysis. USAID also supported various promotional activities through the HCDA.

The public and private extension services were important in disseminating information on quality control and phyto-sanitary requirements of European consumers. They were especially important in communicating the basic techniques that were necessary for export farming, such as the sizing and handling of highly perishable beans. There was also a trained labor force ready to pick and process the beans. Many in this labor force had gone through waves of training programs for earlier crops and already had a familiarity with conversion to cash crops and with the fundamentals of producing for demanding markets.

Though a resilient performer, the French bean sector has shown vulnerability to global and other pressures. Changes in the weather, such as the excessive rains caused by El Nino, and crumbling infrastructure, have shown they can erode competitiveness by causing production shortfalls and increasing transportation costs. These transportation problems are especially acute in key highland farming areas. In addition to charging higher transportation prices, exporters and distributors have also begun to limit the credit they had provided to these small farmers through contracts, mainly due to difficulties in collections. This lack of credit has limited a key source of funding for inputs.

In the 1980s, the World Bank and USAID had supported a Small Farm Credit Project and a Rural Finance Mobilization Project, lending mainly to small farmers producing maize, beans, cotton, and rice. However, these credit initiatives were abandoned in the 1990s due to problems associated with re-payment and collections. Consequently, in the 1990s, credit in the French beans sector, for small farmers, came mostly from their buyers.

Other vulnerabilities have also surfaced. High airfreight rates to Europe resulting primarily from higher jet fuel costs have raised the price of the country's beans relative to other African producers entering the market. Also, constantly changing European Union regulations on pesticide use have exposed weaknesses in the existing local extension and other services that get the information to widely dispersed farmers. Because the country is not a member of the Union for the Protection of New Varieties and Plants (UPOV), its farmers must deal with very high prices and limited access to new varieties critical in export markets. Inspection and warehousing facilities have also been seen to be increasingly inadequate, especially as wider infrastructure problems surface, bringing the quality of the country's beans into question.